DEPARTMENT OF VETERAN AFFAIRS AND

AMERICAN PARKINSON DISEASE ASSOCIATION, INC.

Fall 2015

PARKINSON PRESS NEWSLETTER

Consider the environment. Print newsletter as necessary.

Caffeine, Genes, Parkinson's Disease, and You

John H. Peacock, M.D., Ph.D.

Some of you have asked if coffee is acceptable for Parkinson's (PD) patients and then are surprised to learn that coffee is even advisable, if you like its taste. This opinion is based on results from several studies (1, 3, and 4). These data showed coffee drinkers had a lower incidence of Parkinson's disease that a matched group of non-coffee drinkers. In 2011 a discovery was made of a possible genetic basis for the neuro-protective effect of caffeine (2, 5, and 6). Read on and stick with me.

In this Issue:

The glutamate-receptor gene, called *GRIN2A,* helps control brain signals important for movement**.** Glutamate receptors are proteins on neuronal membranes that receive and respond to the neurotransmitter glutamate. A good image to keep in mind as we are moving into play-off season, is a baseball and a catcher's mitt. The baseball is the glutamate and the mitt is the receptor. In turn these receptors trigger signals that travel around the "baseball diamond", i.e. pathways to other neurons.

Turning to the *GRIN2A* genetic work. Now that the human genome has been mapped, techniques are available to relate an individual to environmental exposure. The authors of the study succinctly summarize their conclusion and this is quoted below from Dr. Payami and his group.

"Parkinson's disease, like most common disorders, involves interactions between genetic make-up and environmental exposures that are unique to each individual. Caffeinated-coffee consumption may protect some people from developing PD, although not all benefit equally. In a genome-wide search, we discovered that variations in the glutamate-receptor gene *GRIN2A* modulate the risk of developing PD in heavy coffee drinkers. The study was hypothesis-free, that is, we cast a net across the entire genome allowing statistical significance to point us to a genetic variant, regardless of whether it fell in a genomic desert or an important gene. Fortuitously, the most significant finding was in a well-known gene, *GRIN2A*, which regulates brain signals that control movement and behavior. Our finding is important for three reasons: First, it is a proof of concept that studying genes and environment on the whole-genome scale is feasible, and this approach can identify important genes that are missed when environmental exposures are ignored. Second, the knowledge of interaction between *GRIN2A*, which is involved in neurotransmission in the brain, and caffeine, which is an adenosine-A_{2A}-receptor antagonist, will stimulate new research towards understanding the cause and progression of PD. Third, the results may lead to personalized prevention of and treatment for PD".

Dr. Payami had been aware that heavy coffee drinkers had a lower incidence of Parkinson's disease and decided to study this neuroprotective effect in her genome vs. environmental model with caffeine being the perturbing factor in the model. Her group discovered the appearance of a block of linked single-nucleotide polymorphisms that mapped to the *GRIN2A* gene on chromosome 6. They sorted the study group into heavy or light coffee drinkers (including non-coffee drinkers). Heavy coffee drinkers with *one variant* of the *GRIN2A* gene had an 18% lower risk for PD compared with light coffee drinkers, whereas heavy coffee drinkers with *another variant* of the same gene had a 59% lower risk compared with light coffee drinkers.

Thus, PD risk reduction by heavy coffee use (27% on average) was dependent on the *GRIN2A* genotype. If an individual is not carrying this genotype, caffeine will not reduce the risk of developing PD. However, at this time it is not practical to be individually checked for the genetic variation of the *GRIN2A* gene that will be most neuroprotective with caffeine.

In conclusion, enjoy a cup of coffee and don't worry whether or not it provides neuroprotection for you.

Bibliography

1. de Lau LM, Breteler MM. Epidemiology of Parkinson's disease. *Lancet Neurol*. 2006 Jun. 5(6):525-35.
2. Hamza TH, Chen H, Hill-Burns EM, Rhodes SL, Montimurro J, Kay DM, et al. (2011) Genome-Wide Gene-Environment Study Identifies Glutamate Receptor

Gene *GRIN2A* as a Parkinson's disease Modifier Gene via Interaction with Coffee. PLoS Genet 7(8): e1002237. doi:10.1371/journal.pgen.1002237

3. Jasvinder Chawla, MD, MBA; Chief Editor: Nicholas Lorenzo, MD, MHA, CPE, Medscape, Neurologic effects of caffeine.
4. Palacios N et al. Caffeine and risk of Parkinson disease in a large cohort of men and women. Mov Disord. 2012 Sep 1: 27(10):1276-1282.
5. Harrison, Pam. Genetic Basis for Coffee's Protective Effect in PD Discovered. Medscape Medical News, Nov 02, 2011.
6. Note. Haydeh Payami PhD, is Professor of Genetics and Neurology at State University of New York.

Contact Information-Disclaimer

APDA Dedicated Veterans Information and Referral Center
975 Kirman Avenue
Reno, NV 89502-0993
Telephone: 775-328-1715
Toll Free: 888-838-6256 ext 1715
Fax: 775-328-1816
Internet Site: www.reno.va.gov/parkinsons/parkinsons.asp
Intranet Site: wwva.reno.va.gov/parkinsons/parkinsons.asp
Email: Susan.Gulas@va.gov

Coordinator/Editor: Susan Gulas, RN, MSN
Medical Director: John Peacock, MD, PhD

APDA National Office
135 Parkinson Avenue
Staten Island, NY 10305-1425
Fax: 1-718-981-4399 Telephone: 718-981-8001 Toll Free: 800-223-2732
Website: www.apdaparkinson.org

Disclaimer:
The material in this newsletter is presented solely for the information of the reader. It is not intended for treatment purposes, but rather for discussion with the patient's physician.

Veteran Update

.

Veterans Exposed to Agent Orange:

Veterans who were exposed to Agent Orange or other herbicides during military service may be eligible for a variety of VA benefits, including disability compensation for diseases associated with exposure. Your dependents and survivors also may be eligible for benefits.

"Agent Orange" refers to a blend of tactical herbicides the U.S. military sprayed in the jungles of Vietnam and around Korean demilitarized zone to remove trees and dense tropical foliage that provided enemy cover. Herbicides were also used by the U.S. military to defoliate military facilities in the U.S. and in other countries as far back as the 1950's.

In Addition, VA has determined there is evidence of exposure to Agent Orange for Air Force and Air Force Reserve members who served during the period 1969 through 1986 and regularly and repeatedly operated, maintained, or served aboard C-123 aircraft (known to have been used to spray an herbicide agent during the Vietnam era).

For more information check VA's Guide to Agent Orange Claims to learn more about how to establish eligibility to disability compensation and how much VA pays. You can also call the Agent Orange Help Line at 1-800-749-8387 or send an email to GW/AOHelpline@vba.va.gov. You must provide your name; email address, telephone and/or fax number, and VA file number/Social Security Number. Most responses are between 3 and 10 workdays.

VA to Launch Vets.gov

According to Military.com, the Department of Veterans Affairs(VA) will launch a new website, Vets.gov on Veterans Day, November 11. The new website will consolidate the approximately 1,000 websites the department now manages. The portal is designed to help veterans find and apply for benefits and services on one website rather than go through the maze of VA-managed websites that exist now. The new website will have content but not the single, secure sign-on function that veterans will need to provide access to all other departmental sites. That capability is expected to take another year. A Request for Information for technical support for the new Vets.gov website is available on the FedBizOpps.gov website.

RESEARCH OPPORTUNITIES

If you are interested in current research regarding Parkinson's disease, please visit one or all of the sites listed below.

Fox Trial Finder www.foxtrialfinder.org

Clinical Trials www.ClinicalTrials.gov

Center Watch www.centerwatch.com

What's New???

Two cups of coffee a day reduces risk of cognitive impairment and other disease:

Earlier studies suggest that drinking coffee excessively could place an individual at risk of Alzheimer's disease; coffee offers benefits, especially if you drink the right amount.

According to a research published in the *Journal of Alzheimer's Disease,* people who drink excessive amounts of coffee are at risk of suffering from "mild cognitive impairment," a risk factor for Alzheimer's or dementia. Nevertheless, light to moderate coffee drinkers need not worry. In fact, they can reap the benefits of drinking coffee.

Coffee is rich in antioxidants, which helps fight different diseases. According to a team of researchers from the University of California in Los Angeles, coffee slows the development of type 2 diabetes, although it increases the amount of sex hormone-binding globulin (SHBG).

Coffee was also found to help prevent, if not stop, Parkinson's disease, a study from the research Institute of the McGill University Health Center can confirm. According to their findings, there is a significant evidence to back up their claims about drinking the right amount of coffee and the potentials of arresting the development of Parkinson's.

Researchers Explore Memory Problems Related to Parkinson's:

Many people with Parkinson's disease have memory problems, researchers report.

The study included 40 people with early stage Parkinson's disease and 40 healthy older adults. While the disease is generally viewed a s movement disorder, about half of the Parkinson's patients had difficulty with some aspect of memory, such as learning and retaining information, or recalling spoken information, the investigators found.

"And then half of those participants, or nearly one-quarter of all participants with Parkinson's, were really having a difficult time consistently with their memory, enough that it would be noticeable to other people," said study author Jared Tanner. Tanner is an assistant research professor in the department of clinical and health psychology at the University of Florida at Gainesville.

Still, there was good news: Most of the Parkinson's patients did not have significant memory problems, according to the authors of the study published online recently in the journal *PLos One.*

Because of the study's design, the researchers could only show an association between Parkinson's disease and memory problems; they couldn't prove a cause-and-effect relationship.

For more information the U.S. National Institute of Neurological Disorders and Stroke has more on Parkinson's disease.

"Pars for Parkinson's" Charit**y** golf tournament raised almost $12,000 for the local Information & Referral Center of the American Parkinson's Disease Association. Proceeds from the tournament at Lakeridge Golf Club will help fund research and education in Northern Nevada. The APDA I&R Center would like to thank Chuck Siddall for organizing the golf tournament and Martin Williamson for helping recruit golfers. For information, visit, www.apdaparkinson.org

Upcoming Educational Events

Udall Awards Dinner: 2015 Morris K. Udall Wards Dinner, October 1, 2015. Special Guest: Francis S. Collins, MD, PhD, Director of the National Institutes of Health. To register: https://47225.thankyou4caring.org/pages/2015-udall-dinner

XXI World Congress on Parkinson's Disease and Related Disorders, December 6-9, 2015. Milan, Italy. www.oic.it/iaprd2015

Northern Nevada Support Group

Contact information: 775-328-1715 or 888-838-6256 ext. 1715

Website: www.reno.va.gov/parkinsons/parkinsons.asp

Spanish Springs	October 7	November 4	December 2
First Wednesday	Jessica , Resident	Lori Waldorf Susan Gulas	Group Members
10:00 am	Medication for PD	Caregiver &Patient Group	Group Discussion
Cascades of the Sierra, 275 Neighborhood Way, 2nd floor Great Room			

Carson City	October 13	November 10	December 8
Second Tuesday	Cindy Chorjel	Valerie Williams	Cancelled
2:00 pm	Equipment Needs in PD	Memory & PD	Cancelled for December
Carson City Senior Center, 911 Beverly Drive, lower level Tahoe Room			

Reno	October 9	November 13	December 11
Second Friday	Group Members	Jeff Johnson, OT	Cancelled
2:00 pm	Group Discussion	ADL's and PD	Cancelled for December
Atria at Summit Ridge, 4880 Summit Ridge Drive, Main Dining Room			

Reno	October 20	November 17	December 15
Third Tuesday	Group Members	Dr. Louie	Cancelled
5:00pm	Group Discussion	Q&A on DBS	Cancelled for December
Veterans Administration Medical Center, 975 Kirman Ave, Meet in Kirman Lobby			

Sparks	October 22	November 26	December 24
FourthThursday	Group Members	Cancelled	Cancelled
2:30 pm	Group Discussion	Thanksgiving	Christmas Eve
Morning Star Senior Living, 2360 Wingfield Hills Drive, Sparks, NV, 2nd floor			

Reno	October 15	November 19	December 17
Third Thursday	Group Members	Byron Parks	Cancelled
2:00pm	Group Discussion	Caregiver Support Program	Cancelled for December
Five Star Premier Residences of Reno, 3201 Plumas Street, Reno, NV			

Elko-Reno	October 2	November 6	December 4
First Friday	Mary Brock	Group Members	Kelly Cramond PhD
1:00 pm	What is Respite?	Group Discussion	Anxiety, Fatigue & Sleep
University of Nevada Cooperative Extension, 4955 Energy Way. Reno, NV University of Nevada Elko, 701 Walnut Street, Elko, NV			

Bowling Group:

Join the Parkinson's disease bowling group each Thursday @11:30am at High Sierra Lanes on South Virginia & Moana Street. Please call the APDA I&R Center @775-328-1715 for further information.

VAMC Los Angeles PADRECC Veterans Telephonic Support Group

Join us ~2 min. prior to the hour on the 2nd Tuesday of each month
1-800-767-1750, Access code 54321#
Virginia Janovsky, MN, MS, RN-BC
Clinical Coordinator/Research Study Coordinator
Southwest Parkinson's Disease Research, Education and Clinical Center
Veterans Affairs-Greater Los Angeles Healthcare System
(310) 478-3711, x4804